COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

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January 13, 2009

Mr. Gary Goeke
NEPA/CZM Coordination Unit Supervisor
Minerals Management Service
Gulf of Mexico OCS Region
1201 Elmwood Park Boulevard
New Orleans, Louisiana 70123-2394

RE: Scoping Comments on the Call for Information and Interest/Nominations and the Notice of Intent for the Interior Department's Outer Continental Shelf (OCS), Gulf of Mexico OCS Region, Mid-Atlantic Proposed Oil and Gas Lease Sale 220, DEQ-08-225F

Dear Mr. Goeke:

This letter and the attached scoping comments respond to the notice by the Department of the Interior's Minerals Management Service (MMS) for Information and Interest/Nominations (Call) and Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) (Federal Register, Volume 73, Number 220, dated November 13, 2008, pages 67201 through 67206 and Federal Register, Volume 74, Number 4, dated January 7, 2009, page 727). The Call and the NOI are the initial information-gathering steps in a process that incorporates planning and analysis for proposed OCS Oil and Gas Lease Sale 220 in the Mid-Atlantic Planning Area in the area offshore the Commonwealth of Virginia.

Virginia Offshore Energy Policy: The Commonwealth of Virginia is cognizant of the national need to reduce reliance on foreign sources of energy. Accordingly, an offshore policy was developed as part of comprehensive energy legislation during the 2006 session of Virginia's General Assembly. The main elements of the policy are:

- Virginia supports federal efforts to determine the extent of offshore natural gas resources.
- No activity should occur within 50 miles of the shoreline.

- The offshore waters of all Atlantic states should be considered at the same time.
- Activity should be limited to exploration only and natural gas only.

As stated in Governor Timothy Kaine's December 19, 2008 letter to Mr. Randal B. Luthi, the MMS proposal to start the leasing process could lead to production of both natural gas and oil and therefore does not comport with Virginia's offshore energy policy (see attached).

Potential Adverse Impacts on Hard Mineral Resources: While Virginia's policy specifies a 50-mile exclusion zone and limits the Commonwealth's support to natural gas exploration only, infrastructure associated with any successful exploration and production activities could negatively impact hard mineral resources, principally sand and gravel, located within the 50-mile exclusion zone. Many of the hard mineral resources have been previously identified, but potential exists for additional resources to be isolated. The extent to which the sand and gravel deposits may contain economically significant quantities of titanium-bearing minerals or zircon has not been adequately determined. Gas pipelines, foundations, anchorages, or other seafloor facilities constructed without prior evaluation of hard mineral resource occurrences could degrade or remove those resources from possible future exploitation. Consideration should be given to a transparent method of oversight within the MMS that minimizes or eliminates potential exploitation conflicts between oil and gas, hard mineral resources, and any future alternative energy and alternate use programs.

Equitable Delineation of States Administrative Boundaries: The 2007-2012 OCS Oil and Gas Lease Program used Administrative Boundary designations based on the Equidistant Line methodology. This methodology results in an inequitable allocation of interest areas among the states due to the vagaries of shoreline geometries at the points from which boundaries are projected. The MMS should revisit its previous decision to use the Equidistant Line methodology and instead use a more equitable delineation method for establishing state administrative boundaries. Such a methodology could take into consideration factors such as length of shoreline measured along the baseline from which the Territorial Sea is measured. Heavier weighting could also be given to the land's dominance of the sea by high densities of shore-side populations or facilities.

Cooperating Agency Status: The MMS invites qualified government entities to inquire about cooperating agency status for this lease sale EIS. The Commonwealth of Virginia, through the Office of the Secretary of Natural Resources (SNR) as the lead point of contact, is interested in entering into discussion with MMS on cooperating agency status in the preparation of the lease sale EIS. The Commonwealth requests that the MMS provide the SNR with a written summary of ground rules for cooperating agencies, including time schedules and critical action dates, milestones, responsibilities, scope and detail of cooperating agencies' contributions, and handling of pre-decisional information. It is our understanding that the summary would form the basis for a Memorandum of Understanding between the MMS and the Commonwealth, should the

Commonwealth decide to pursue cooperating agency status after reviewing the information. The summary may be sent to Ms. Nikki Rovner, Deputy Secretary of Natural Resources, Office of Governor Timothy M. Kaine, Patrick Henry Building, 1111 East Broad Street, Richmond, Virginia 23219; (804) 786-0044; nikki.rovner@governor.virginia.gov.

Comprehensive Offshore Energy Development to Include Wind Energy: The MMS indicated its intent to prepare an EIS for Sale 220 in the Mid-Atlantic Planning Area, scheduled for 2011 and requested comments on the scope of the EIS. We recommend the development of a comprehensive energy plan that includes oil, gas, wind, wave and other energy alternatives. In particular, the MMS should include offshore wind energy development within the scope of the EIS, as a credible alternative scenario whereby offshore wind energy development would occur in the federal OCS off Virginia, concurrent with offshore oil and gas exploration and development.

This alternative should be included in order to account for potential interactions between these two different offshore energy industries, including:

A. Potential competition (and associated need for coordinated planning) for vessels, labor, port space, fabrication and repair facilities, marine equipment and supplies, and business financing for installation services and for offshore support services.

B. Potential conflict between the routing of any offshore gas pipeline(s) and the placement of offshore wind turbine towers, the placement of offshore substation platforms, the routing of submarine power cables that connect offshore wind turbines to offshore substations, and the routing of submarine power cables that connect offshore substations to coastal substations on shore.

C. Potential cooperative development of offshore gas and offshore wind in a hybrid project whereby combustion in an offshore gas turbine-generator would provide electric power when wind speeds are too low for full-capacity wind turbine output. This would enable a hybrid project to generate continuous, firm power and is a credible development scenario that already has been permitted for a similar hybrid project off the coast of Wales in the United Kingdom (http://seapower-generation.co.uk/eis.htm).

D. Cumulative environmental effects, including

   (1) Cumulative physical footprints of oil and gas platforms, wind turbine towers, and other structures on the seafloor, which would have ecological impacts.

   (2) Cumulative build-up of onshore fabrication, installation, and operational support infrastructure, which would have ecological and socio-economic impacts.

   (3) Cumulative increase in ship and helicopter traffic for offshore support services, which would have ecological and navigation impacts.

MMS has regulatory authority for both oil and gas development on the OCS and for alternative energy development on the OCS, and the scope of EIS scenarios should consider both of these offshore energy industries.

Scoping for EIS Development: A discussion of the environmental, biological, archaeological, socioeconomic, geological (including natural hazard areas) conditions or potential conflicts, and other information pertaining to potential leasing, exploration, and development of the program area and vicinity is attached. Many of these comments were included in the Commonwealth's September 11, 2008 scoping response to the Interior Department's 5-Year Outer Continental Shelf (OCS) Oil and Gas Leasing Program for mid-2010 through mid-2015 (reviewed under DEQ-08-171F) and October 6, 2005 scoping response on the 5-Year OCS Gas and Oil Leasing Program for 2007-2012 (reviewed under DEQ-05-230F).

According to the notice, this announcement is not a commitment by MMS to hold a lease sale but rather a continuation of the information gathering and evaluation process. It is with this understanding that reviewing agencies have provided the attached scoping comments.

Thank you for the opportunity to comment on the Call and the NOI for the Outer Continental Shelf, Gulf of Mexico OCS Region, Mid-Atlantic Proposed Oil and Gas Lease Sale 220. If you have questions, please feel free to call me at (804) 698-4325 or John Fisher at (804) 698-4339.

We hope this information is helpful to you.

Sincerely,

Ellie Irons, Manager
Office of Environmental Impact Review

Enclosures

cc: Nikki Rovner, Deputy Secretary of Natural Resources
Michelle Hollis, DEQ-TRO
Paul Kohler, DEQ-Waste
Laura McKay, DEQ-VCP
Ernie Aschenbach, DGIF
Steve Walz, DMME
Matt Heller, DMME
Barry Matthews, VDH
Keith R. Tignor, VDACS
Tony Watkinson, VMRC
Heather Mantz, VPA

Todd Groh, VDF
Ethel R. Eaton, DHR
Pam Mason, VIMS
Chris Adkins, VDOT
Dwight Farmer, HRPDC
Paul F. Berge, A-NPDC
George Hagerman, VCERC

Attachment

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Scoping Comments on the Call for Information and Interest/Nominations and the Notice of Intent for the Interior Department's Outer Continental Shelf (OCS), Gulf of Mexico OCS Region, Mid-Atlantic Proposed Oil and Gas Lease Sale 220, DEQ-08-225F

The following discussion is in response to the notice by the Department of the Interior's Minerals Management Service (MMS) on the Call for Information and Interest/Nominations (Call) and Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) (Federal Register, Volume 73, Number 220, dated November 13, 2008, pages 67201 through 67206 and Federal Register, Volume 74, Number 4, dated January 7, 2009, page 727). The Call and the NOI are the initial information-gathering steps in a process that incorporates planning and analysis for proposed OCS Oil and Gas Lease Sale 220 in the Mid-Atlantic Planning Area in the area offshore the Commonwealth of Virginia. It is understood that the MMS announcement is not a commitment to hold a lease sale but rather a continuation of the information gathering and evaluation process.

Call for Information and Interest/Nominations

According to the Federal Register notice, the purpose of the Call is to gather information for proposed OCS Lease Sale 220 in the Mid-Atlantic Planning Area offshore Virginia, tentatively scheduled in 2011. Comments are sought from all interested parties about particular environmental, biological, archaeological, socioeconomic, and geological (including natural hazard areas) conditions or potential conflicts, or other information that might bear upon the potential leasing, exploration, and development of the program area and vicinity. Furthermore, respondents may indicate nominations of areas to be considered for leasing within the 593 whole and partial blocks within the Virginia subarea of the Mid-Atlantic Planning Area and comment on any or all of the federal acreage within the boundaries of the Call area.

Notice of Intent to Prepare an EIS

Simultaneously with the Call, the MMS is giving notice of its intent to prepare an EIS for Sale 220 in the Mid-Atlantic Planning Area, scheduled for 2011. The NOI serves to announce the initiation of the scoping process for the EIS. The EIS analysis will focus on the potential environmental effects on biological, physical, and socioeconomic environmental resources from oil and gas exploration, development, and production activities in the Mid-Atlantic OCS. Through the scoping process, federal, state, tribal, and local governments and other interested parties aid MMS in determining the significant issues, reasonable alternatives, and potential mitigating measures to be analyzed in the EIS and the possible need for additional information.

VIRGINIA'S ENVIRONMENTAL REVIEW RESPONSIBILITIES

1. Virginia's Review of Environmental Documents.

The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of federal environmental documents prepared pursuant to NEPA and responding to appropriate federal officials on behalf of the Commonwealth. DEQ is also the lead agency for review of federal consistency determinations prepared pursuant to the Coastal Zone Management Act and the Virginia Coastal Resources Management Program.

The roles of the Virginia Department of Environmental Quality (DEQ) in relation to the development of environmental documents will be as follows. First, DEQ's Office of Environmental Impact Review (OEIR) will coordinate Virginia's review of any National Environmental Policy Act (NEPA) documents and comment to MMS on behalf of the Commonwealth. A similar review process will pertain to federal consistency determinations that must be provided for lease sales which can affect Virginia's coastal uses and coastal resources, pursuant to the Coastal Zone Management Act (CZMA) (see "*2. Federal Consistency...*" below). In order to ensure an effective coordinated review of the NEPA document, we will require 30 copies of the document when it is published. Additional information on the submission of environmental documents may be found on the DEQ-OEIR web page at http://www.deq.virginia.gov/eir/.

The following state agencies and regional planning district commissions joined in this review of the notice, and will be solicited in our later review should a NEPA document be submitted by MMS:

Department of Environmental Quality
Department of Mines, Minerals, and Energy
Department of Game and Inland Fisheries
Department of Conservation and Recreation
Marine Resources Commission
Virginia Institute of Marine Science
Department of Health

Department of Transportation
Department of Forestry
Virginia Coastal Energy Research Consortium
Hampton Roads Planning District Commission.

In addition, the following agencies and planning district commissions were invited to comment, and will be invited again should the leasing plan be developed and a NEPA document is made available:

Department of Agriculture and Consumer Services
Department of Historic Resources
Virginia Port Authority
Accomack-Northampton Planning District Commission.

2. Federal Consistency under the Coastal Zone Management Act.

Pursuant to the Coastal Zone Management Act of 1972, as amended, federal activities affecting Virginia's coastal resources or coastal uses must be consistent, to the maximum extent practicable, with the Virginia Coastal Resources Management Program (VCP) (see section 307(c)(1) of the Act and the *Federal Consistency Regulations*, 15 CFR Part 930, sub-part C, section 930.32). Federally licensed or permitted activities must be consistent with the affected State's federally approved coastal zone management plan (subpart D, sections 930.50 et seq.). For individual lease sales offshore of Virginia, MMS must provide a consistency determination which involves an analysis of the activities in light of the affected State's coastal zone management plan (CZMP), and a commitment to comply with the CZMP. For consistency reviews in Virginia, we invite your attention to the *Federal Consistency Regulations* cited above, and to Virginia's *Federal Consistency Information Package*, which gives content requirements for federal consistency determinations. The *Federal Consistency Information Package* may be found at DEQ's web site:

- http://www.deq.virginia.gov/eir/federal.html.

If you have questions about the environmental review process or the federal consistency review process, please feel free to call Ms. Ellie Irons, DEQ-OEIR Manager at (804) 698-4325 or Mr. John Fisher, DEQ-OEIR at (804) 698-4339.

DISCUSSION OF INFORMATION FOR THE CALL AND EIS

General Information

The following section includes information and discussion of environmental, biological, archaeological, socioeconomic, and geological (including natural hazard areas) conditions or potential conflicts, and other information pertaining to potential leasing, exploration, and development of the program area and vicinity. While the Commonwealth's comments do not include nominations of areas to be considered for

leasing within the 593 whole and partial blocks within the Virginia subarea, they are applicable to the subarea as a whole. Many of these comments were included in the Commonwealth's September 11, 2008 scoping response to the Interior Department's 5-Year Outer Continental Shelf (OCS) Oil and Gas Leasing Program for mid-2010 through mid-2015 (reviewed under DEQ-08-171F) and October 6, 2005 scoping response on the 5-Year OCS Gas and Oil Leasing Program for 2007-2012 (reviewed under DEQ-05-230F).

1. National energy needs.

The Commonwealth of Virginia is cognizant of the national need for energy independence. Accordingly, Virginia legislation established an energy policy for the Commonwealth and directed the Department of Mines, Minerals and Energy (DMME), in consultation with the State Corporation Commission, Department of Environmental Quality, and Virginia Center for Coal and Energy Research, to prepare a ten-year comprehensive Virginia Energy Plan (VEP) to implement the Commonwealth's energy policy. Virginia Code § 67-300 states *"In recognition of the need for energy independence, it shall be the policy of the Commonwealth to support federal efforts to determine the extent of natural gas resources 50 miles or more off the Atlantic shoreline, including appropriate federal funding for such an investigation. The policy of the Commonwealth shall further support the inclusion of the Atlantic Planning Areas in the Minerals Management Service's draft environmental impact statement with respect to natural gas exploration 50 miles or more off the Atlantic shoreline."*

2. Geographical, geological, and ecological characteristics of the planning area of the OCS off Virginia.

Geological Characteristics
According to DMME, evaluations of older vintage seismic lines and data from a small number of exploratory wells on the Atlantic Outer Continental Shelf indicate that geological conditions appropriate for the generation and entrapment of oil and natural gas may exist offshore Virginia. Chemical analyses of cuttings from a well drilled along the northern margin of Virginia's offshore Administrative Boundary suggested that source rocks in the area are prone to generate natural gas rather than oil. Through an extrapolation of observed and potential oil and gas play types along the entire Atlantic OCS, the Minerals Management Service has estimated mean values for Undiscovered Technically Recoverable Resources for oil and gas of 3.82 Bbo and 37 Tcf, respectively. The portion of the estimated Atlantic OCS resources that might be attributable to the area within the Program Area for the Proposed Lease Sale 220 offshore Virginia has been estimated at about 0.130 Bbo and 1.14 Tcf of gas, but is in reality unknown. Anticipated production from the Virginia Program Area is 0.056 Bbo and 0.327 Tcf of gas, based on the 2006 National Assessment.

Recommendation

To properly evaluate the potential for, and probable location of, oil and gas resources within Virginia's OCS Administrative Boundary, modern seismic data acquisition and processing methods will be required in conjunction with adequate exploratory drilling. The federal government or industry should allow adequate time to plan for and mobilize an appropriate exploration program.

Ecological Characteristics

According to the Department of Game and Inland Fisheries (DGIF), Virginia's coastal plain and nearshore and offshore waters represent some of the most pristine coastal and marine habitats along the Atlantic coast. Below is a brief overview of the rich diversity of wildlife resources found within Virginia's portion of the OCS planning area.

Virginia's nearshore and offshore waters likely support seasonal or year round occurrences of federally-listed threatened Loggerhead sea turtles (*Caretta caretta*), federally-listed endangered Kemp's Ridley sea turtles (*Lepidochelys kempii*), federally threatened Green sea turtles (*chelonia mydas*) and federally-listed endangered Leatherback sea turtles (*Dermochelys coriacea*). Additionally, oil and gas drilling leases may fall within the ranges of several marine mammal species including the federally-listed endangered Northern Right Whale (*Balaena glacialis*), the federally-listed endangered Humpback Whale (*Megaptera novaeangliae*), the federally-listed endangered Sei Whale (*Balaenoptera borealis*), and the federally endangered Fin Whale (*Balaenoptera physalus*).

Oil and gas drilling leases may occur within important migration and wintering habitats for Red Phalaropes (*Phalaropus fulicaria*), Red-necked Phalaropes (*Phalaropus lobatus*), and a variety of seabirds and sea ducks. Lastly, millions of migratory landbirds (passerines and raptors) funnel through the lower Delmarva Peninsula each fall making it one of the most important staging areas along the Atlantic flyway. To date, little is known about landbird occurrences over Virginia's nearshore and offshore waters. However, various radar studies suggest that some fall migrants may follow offshore flight paths. It is possible these offshore flight paths may intersect with oil and gas drilling leases.

A large portion of Virginia's coastline consists of a 94 km barrier island chain comprised of 14 remote and largely undeveloped islands. With the exception of only a few private in-holdings, the islands are owned and managed by various federal, state and private conservation organizations. The Nature Conservancy of Virginia (TNC) owns the majority of the islands and their associated marshes, which is designated as The Virginia Coast Reserve (VCR). The island chain has been recognized as an International Shorebird Reserve within the Western Hemisphere Shorebird Reserve Network (WHSRN) because of its importance to the survival of over 100,000 shorebirds annually. In addition, the VCR has been designated as a Man and the Biosphere Reserve by the United Nations Educational, Scientific and Cultural Organization.

Collectively, the barrier islands are an important breeding area for several beach nesting shorebirds including the federally-listed threatened Piping Plover (*Charadrius melodus*), the state-listed endangered Wilson's plover (*Charadrius wilsonia*), and the American Oystercatcher (*Haematopus palliatus*), which is listed as a species of high concern in the U.S. Shorebird Conservation Plan. Also found breeding on the barrier islands are a number of seabird species including state threatened Gull-billed Terns (*Sterna nilotica*), Least Terns (*Sterna antillarum*; a state species of special concern), Common Terns (*Sterna hirundo*), Royal Terns (*Strena maxima*), Sandwich Terns (*Sterna sandvicensis*), Black Skimmers (*Rynchops niger*), Brown Pelicans (*Pelecanus occidentalis*) and several species of gulls. The barrier islands also support a few mixed species wading bird colonies (i.e., herons, egrets, and ibis) and as well as a small breeding waterfowl population. The barrier island chain also represents an important migration stopover and wintering area for shorebirds and waterfowl. On a rare occasion, Loggerhead sea turtles nest on the islands along with large numbers of Diamondback Terrapins (Malaclemys terrapin).

The Eastern Shore of Virginia's seaside lagoon system, which is located behind the barrier island chain, serves as a globally important migration corridor and stopover site for thousands shorebirds annually, supports numerous species of breeding waterbirds (wading birds, gulls, skimmers, pelicans, and terns), marshbirds, waterfowl, shorebirds, passerines and raptors (including the state threatened Bald Eagle (*Haliaeetus leucocephalus*) and state threatened Peregrine Falcon (*Falco peregrinus*), and provides important wintering habitat for a wide variety of seaducks, shorebirds, seabirds and landbirds.

The nearshore and offshore waters off the Virginia's southern mainland beaches (Fort Story south to the VA/NC state line) likely support seasonal or year round occurrences of Loggerhead, Kemp's Ridley, Green and Leatherback sea turtles along wide a variety of marine mammals including the Florida Manatee (*Trichechus manatus latirostrus*). Additionally, a Bottlenose Dolphin (*Tursiops truncatus*) nursery area located off of Fort Story. Virginia represents the northern extreme of the Loggerhead sea turtle breeding range with most the annual nesting activity confined southern mainland beaches where as many as seven nests have been recorded in a single nesting season. In 2005, the state's first Green sea turtle nest was documented at Sandbridge just north of Back Bay National Wildlife Refuge.

3. Equitable sharing of developmental benefits and environmental risks among the various planning areas.

The Department of Mines, Minerals and Energy notes that the 2007-2012 OCS Oil and Gas Lease Program used administrative boundary designations based on the equidistant line methodology. This methodology results in an inequitable allocation of interest areas among the states due to the vagaries of shoreline geometries at the points from which boundaries are projected.

Recommendation

The MMS should revisit its previous decision to use the Equidistant Line methodology and instead use a more equitable delineation method for establishing state administrative boundaries. Such a methodology could take into consideration factors such as length of shoreline measured along the baseline from which the Territorial Sea is measured. Heavier weighting could also be given to the land's dominance of the sea by high densities of shore side populations or facilities.

4. Location of planning areas with respect to, and the relative needs of, regional and national energy markets.

According to DMME, the Atlantic coastal states include major energy markets, accounting for 22% of U.S. natural gas consumption and 31% of petroleum product consumption annually. In Virginia, most energy use is in coastal areas. Some of these areas have experienced natural gas supply constraints in the recent past, due to distance from source areas and inadequate pipeline infrastructure. Development of natural gas resources near these markets would reduce supply disruptions and transportation costs, and reduce the risk of transportation-related accidental discharges.

Recommendation

The EIS should include a discussion of energy markets with respect to the oil and gas lease sale off Virginia.

5. Other uses of the sea and seabed.

While Virginia's policy, established by legislation enacted in 2006, specifies a 50-mile exclusion zone and limits the Commonwealth's support to natural gas exploration only, infrastructure associated with any successful exploration and production activities could negatively impact hard mineral resources, principally sand and gravel, located within the 50-mile exclusion zone. Many of the hard mineral resources have been previously identified, but potential exists for additional resources to be isolated. The extent to which the sand and gravel deposits may contain economically significant quantities of titanium-bearing minerals or zircon has not been adequately determined. Gas pipelines, foundations, anchorages, or other seafloor facilities constructed without prior evaluation of hard mineral resource occurrences could degrade or remove those resources from possible future exploitation.

The MMS must ensure that OCS activities are consistent with Virginia's energy goals and address potential use conflicts. For example, the Hampton Roads harbor and the adjacent coastal waters accommodate a diverse set of uses including commercial and recreational fishing, recreational boating, tourism, extensive military operations, and commercial shipping traffic. In the absence of proper planning, energy exploration and development in Virginia's coastal waters have the potential to exacerbate use conflicts.

The Virginia Coastal Energy Research Consortium (VCERC) was established by the Virginia Energy Plan to "serve as an interdisciplinary study, research, and information resource for the Commonwealth on coastal energy issues" with an initial focus on offshore winds, waves, and marine biomass. The mission of VCERC is to identify and develop new coastal energy resources through multidisciplinary research collaborations and environmentally responsible strategies. VCERC is charged with the following responsibilities:

- consult with the General Assembly, federal, state, and local agencies, nonprofit organizations, private industry and other potential users of coastal energy research;
- establish and administer agreements with other universities of the Commonwealth to carry out research projects relating to the feasibility of recovering fuel gases from methane hydrates and increasing the Commonwealth's reliance on other forms of coastal energy;
- disseminate new information and research results;
- apply for grants made available pursuant to federal legislation, including but not limited to research and development calls from the federal government and from other sources; and
- facilitate the application and transfer of new coastal energy technologies.

VCERC is governed by a board which consists of fourteen members, with representatives from eight partner universities and six government and industry partners and is located at Old Dominion University in Norfolk, Virginia. For more information, contact George Hagerman at telephone (703) 387-6030 or email ghagerman@vt.edu

Recommendations

- Consideration should be given to a transparent method of oversight within the MMS that minimizes or eliminates potential exploitation conflicts between oil and gas, hard mineral resources, and any future alternative energy and alternate use programs.
- The MMS should closely coordinate lease sales in the Virginia subarea with Virginia's natural resources agencies, the Department of Mines, Minerals and Energy and Virginia Coastal Energy Research Consortium.

6. Relative environmental sensitivity and marine productivity of the planning area and/or specific section of a given planning area of the OCS.

The mid-Atlantic coastal region is a globally significant area for migration of birds, sea turtles, and marine mammals. The Eastern Shore, in particular, provides breeding grounds and stopover points for federal and state listed sea turtles and shorebirds. Therefore, it is important to understand how the construction and operation of facilities related to oil and gas exploration, development, and production may impact these species and the resources upon which they depend.

The collection of pre-construction and exploration data will provide a baseline upon which the exploration, development, and operational impacts can be evaluated. These studies may also provide insight on the most effective way to mitigate for impacts. DGIF has identified the following items as those for which the agency believes further research is particularly warranted.

1. Effects of gas and oil exploration, drilling and production activities on wildlife resources that occur on Virginia's barrier islands and southern mainland beaches.
2. Construction and operation impacts of offshore and land-based gas and oil exploration and production infrastructure (e.g., installation and operation of pipelines used to transport gas from the offshore platform to land, construction and operation of drill platforms, drill ship anchoring systems) on marine and terrestrial environments.
3. Oil, trash, and other harmful materials stemming from gas and oil drilling operations entering the ocean environment.
4. Oil, trash, and other harmful materials stemming from gas and oil drilling operations washing ashore on the barrier islands and/or entering the seaside lagoon system.
5. Impacts of large vessel traffic on sea turtles and marine mammals.
6. Impacts of offshore lighting (above- and under-water) on marine organisms such as sea turtles, marine mammals, fish, aquatic prey species, birds, etc.
7. Impacts of decommissioning and removing gas and oil production structures on the marine environment.
8. Cumulative impacts of oil and gas drilling activities and alternative offshore energy development.
9. Overall impacts to newly established marine sanctuaries.

Recommendations

- Further research is necessary to determine what impacts upon wildlife species may result from offshore oil and gas exploration and development.
- Studies be performed to determine the current species assemblage within the proposed mid-Atlantic leasing blocks (particularly threatened and/or endangered species) and use of these areas by wildlife, both resident and migratory, prior to lease sales and exploration.
- An inventory assessment of all known data resources for the lease area and associated infrastructure be conducted and data gaps identified to inform long-term research efforts.
- Pre-construction monitoring should be conducted to provide baseline data as well as identifying a methodology for evaluating potential impacts from the project including construction, operation and decommissioning of the facility.

7. Environmental and predictive information pertaining to Virginia's offshore and coastal areas.

Sources for information about Virginia's coastal resources as compiled by DGIF are listed below. DGIF recommends that these sources be consulted in preparation of the Environmental Impact Statement.

- Onshore, nearshore and offshore movements of migratory landbirds –Bryan Watts, Center for Conservation Biology at the College of William and Mary (bdwatt@mail.wm.edu) and Barry Truitt, The Nature Conservancy (btruitt@tnc.org).
- Offshore distribution, abundance and movement patterns of seaducks – Doug Forsell, US Fish and Wildlife Service (doug_forsell@fws.gov) and Gary Costanzo, VDGIF (gary.costanzo@dgif.virginia.gov).
- Onshore, nearshore and offshore movements of migratory shorebirds – Bryan Watts, Center for Conservation Biology at the College of William and Mary (bdwatt@mail.wm.edu), Barry Truitt, The Nature Conservancy (btruitt@tnc.org) and Ruth Boettcher, VDGIF (ruth.boettcher@dgif.virginia.gov).
- Offshore distribution, abundance and movement patterns of marine mammals – Sue Barco, Virginia Aquarium and Marine Science Center (ocrab@erols.com).
- Offshore distribution, abundance and movement patterns of sea turtles – Jack Musick, VA Institute of Marine Science (jmusick@vims.edu) and Ruth Boettcher, VDGIF (ruth.boettcher@dgif.virginia.gov).
- Colonial waterbirds and shorebirds on Virginia's barrier islands and seaside lagoon system – Alex Wilke, The Nature Conservancy (awilke@tnc.org), Mike Erwin, University of Virginia (rme5g@cms.mail.virginia.edu) and Ruth Boettcher, VDGIF (ruth.boettcher@dgif.virginia.gov).
- Chincoteague National Wildlife Refuge (CNWR) and its natural resources – Joelle Buffa, CNWR (joelle_buffa@fws.gov).
- Eastern Shore of VA National Wildlife Refuge (ESVNWR) and its natural resources – Pam Denmon, ESVNWR (pam_denmon@fws.gov).
- Back Bay National Wildlife Refuge (BBNWR) and its natural resources – John Gallegos, BBNWR (John_Gallegos@fws.gov).

The faculty and staff of VIMS represent a significant body of expertise in the physical, environmental, and living marine resources in the Mid-Atlantic Planning Area. The breadth of this expertise includes predictive wave and current modeling through fishery resource population assessment and management. For additional discussion and information contact VIMS, Dr. Roger Mann at (804) 684-7108, or rmann@vims.edu.

Specific State Information

1. Information concerning the relationship between OCS oil and gas activity and the states' coastal zone management programs that are administered under the Coastal Zone Management Act.

The Virginia Coastal Resources Management Program (VCP) (also called Virginia Coastal Zone Management Program) is comprised of a network of programs administered by several agencies. In order to be consistent with the VCP, federal activities which can have reasonably foreseeable effects on Virginia's coastal uses and resources must be conducted in a manner which is, to the maximum extent practicable, consistent with the enforceable policies of the VCP. (Attachment 1). Federal agencies are encouraged to consider the advisory policies as well (Attachment 2). As stated in the Commonwealth's October 6, 2006 scoping comments on the Interior Department's 5-Year OCS Gas and Oil Leasing Program for 2007-2012, the Virginia Coastal Program, on behalf of Virginia's Coastal Policy Team, has identified a number of items of information that will be necessary in the EIS in order to allow an effective review of the impacts of OCS oil development. These are:

- Use of the proposed areas by fish, mammals, reptiles and birds
- Impact of seismic exploration activities on marine animals
- How the scale of operation affects the extent of impact
- Cumulative impacts of OCS drilling (e.g., if all East Coast states started producing) on sea floor movement, long-term productivity of the benthic environment, and fisheries.
- Impact from large gas escapes (global warming, buoyancy of water, air quality)
- Likelihood of some type of failure or accident at the operation site which could lead to significant impacts depending on the currents and type of incident. This should take into account the prevailing water and air circulation patterns and their relation to sensitive coastal resources in each state.
- Evaluation of wastewater disposal issues associated with piping natural gas to onshore locations (such as the Hampton Roads area in Virginia) for processing and distribution.
- Potential for natural gas exploration or drilling activities to adversely affect, either directly or indirectly, historic, architectural, and archaeological resources. This includes the potential range of effects on these resources, not just the physical impacts.
- Sustainability of natural gas as a fuel source. This study should consider projections related to a hydrogen economy and the natural gas infrastructure being used to transition to a hydrogen economy.

Subaqueous land management is an enforceable policy of the VCP. Although the proposed lease is for activities on the OCS, encroachments in, on or over state-owned submerged land within Virginia's territorial sea associated with any infrastructure, such as pipelines, for projects on the OCS will require permits from VMRC pursuant to Chapter 12 of Title 28.2 of the Code of Virginia. In addition to permits for encroachments over state-owned submerged land, should any onshore infrastructure related to any lease activity result in a use or development of tidal wetlands or coastal primary dunes/beaches, permits will be required pursuant to Chapters 13 and 14 of the above reference Code Title. As such, the potential near-shore and onshore infrastructure to support activity on the OCS should be considered as part of the environmental documentation for the proposed lease sale.

2. Information concerning environmental risk and potential for damage to coastal and marine resources associated with development of the OCS.

According to the Department of Game and Inland Fisheries, the following research and information needs can, in part, be addressed with currently available data:

- Assess the density, abundance and distribution of resident and migrating waterbirds, passerines, marine mammals and sea turtles in the project area throughout the annual cycle.
- Assess the potential for gas exploration/gas production infrastructure and associated lighting to attract unnatural concentrations of benthic and water column dwelling organisms in the project area, which, in turn, may disrupt normal migration patterns (i.e., prolong length of stay in the area) of sea turtles, marine mammals and seabirds that forage on these organisms (gather data from studies and monitoring programs conducted at existing offshore oil production sites).
- Assess whether gas and oil industry ship traffic will result in an increase in sea turtle and marine mammal vessel strikes (gather data from studies and monitoring programs conducted at existing offshore oil production sites).
- Assess the effects of drill ship lights on sea turtle hatchings that may pass through the project area. It is well known that sea turtle hatchlings emerging from the nest cavity exhibit a strong tendency to orient towards the brightest direction. On developed beaches with beachfront lighting, hatchlings will often crawl towards artificial light sources rather than towards the water. This strong attraction to luminaires elicits a "light trapping" response whereby artificial light fields become the only visible features the turtles perceive. Artificial lights at sea may elicit the same response from sea turtle hatchlings in the water. Of particular concern are those hatchlings that emerge from nests laid on Virginia's barrier islands that may pass through the project area as they make their way to the Gulf Stream. However, if the drill ships are located in the path of the Gulf Stream, thousands of sea turtle hatchlings could be drawn towards and congregate under drill ship lights. Such a response would not only lead to a disruption in normal movement patterns, it would also result in large number of young turtles falling prey to potentially high concentrations of predators (gather data from studies and monitoring programs conducted at existing offshore oil production sites).
- Assess the effects of artificial lighting associated with oil and gas drilling activities on all avian species that may pass through the proposed project area or use it as a foraging or stopover site.
- Gather information on tested methods used to assess potential avian, marine mammal and sea turtle mortality (i.e., locating carcasses at sea, observation methods) in gas exploration project areas and list them in the feasibility study.
- Determine the full extent of the offshore and land-based infrastructure and support systems needed to conduct oil and gas drilling, including size and number of support vessels, a full description of drill ships, drill equipment, and lighting requirements, the length of time it will take to complete the drilling, time of

year the drilling will occur, drilling depths, and location of proposed drill sites, if known. This information should not only be included in the feasibility study, but should be disseminated to all state agencies that are assisting with the study prior to its completion.

- Determine the extent to which gas exploration and production could affect wildlife resources that reside on Virginia's barrier islands and Eastern Shore seaside lagoon system (gather data from studies and monitoring programs conducted at existing offshore oil production sites).
- Determine where the land-based gas production infrastructure will be located (e.g. Hampton Roads, Ocean City).

3. Information related to other uses of the sea.

According to the Hampton Roads Planning District Commission, the Hampton Roads harbor and the adjacent coastal waters accommodate a diverse set of uses including commercial and recreational fishing, recreational boating, tourism, extensive military operations, and commercial ship traffic associated with the port of Hampton Roads and the various shipyards in the region. Energy exploration and development in Virginia's coastal waters have the potential to exacerbate use conflicts in the absence of proper planning.

Recommendation

The Department of Conservation and Recreation recommends the development of a comprehensive energy plan including oil, gas, wind, wave and other energy alternatives for the lease area in order to determine cumulative impacts from the proposed project.